

# Rural America's Transportation Network: Issues for the 1990's

*By moving commercial products to markets and providing many rural residents with access to jobs and services, transportation serves as a vital link to opportunities outside rural areas. However, parts of the rural transportation network have fallen into disrepair. Balancing the need to upgrade transportation infrastructure with decreasing availability of Federal funding and changing regulations will likely continue to be one of the major challenges facing rural America.*

**T**HE transportation network plays a critical role in nonmetro America. By providing many rural residents with access to jobs and services and moving commercial products, transportation functions as an essential cornerstone of rural economic development. The transportation network in nonmetro America, however, has fallen into disrepair. Not only does the physical infrastructure need an overhaul, but the system also requires many technological changes to bring it up-to-date.

Increasing the challenge for rural America, transportation deficiencies must be addressed in the context of Federal budgetary constraints and regulatory changes. The 1995 Rescissions Act cut some transportation funding, including \$2.1 billion in unused airport capital accounts and \$132 million for the Federal Highway Planning and Construction Program. Additional funding cuts resulted from the fiscal year (FY) 1996 transportation appropriations legislation. Specifically, rural areas will be affected by the 16-percent funding decrease in the Rural Public Transit program. Other transportation programs that received reduced funding for FY 1996 include Essential Air Services, Amtrak, and Local Rail Freight Assistance.

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Rural areas will also be affected by the establishment of the 161,000-mile National Highway System (NHS) and the abolition of the national speed limit.

## **Rural Roads and Bridges Need Repair and Redesign**

Nearly 38 percent of county roads are inadequate for current travel patterns and similar conditions exist for other local roads (U.S. Department of Agriculture). And Federal highway statistics indicate that nearly 50 percent of rural bridges 20 feet or longer are structurally or functionally deficient, with about one-third either closed or posted for limited access.

The poor quality of much of the infrastructure directly affects the level of safety on rural roads and bridges, which are disproportionately more dangerous than their urban counterparts. For example, although only one in five Americans resides in rural areas, highway statistics indicate that about one-third of all traffic accidents in the United States occur on rural roads, and those accidents account for over half of all traffic fatalities. While unexpected travel conditions may partly explain the higher mortality rate on rural roads, local highway officials indicate that most responsibility lies with inadequate investment in maintaining, rehabilitating, and/or replacing the road and bridge network (U.S. Department of Agriculture). Because many of the original design standards were based on lower traffic usage, safety has been compromised by the higher speeds and volume that have become common in recent years.

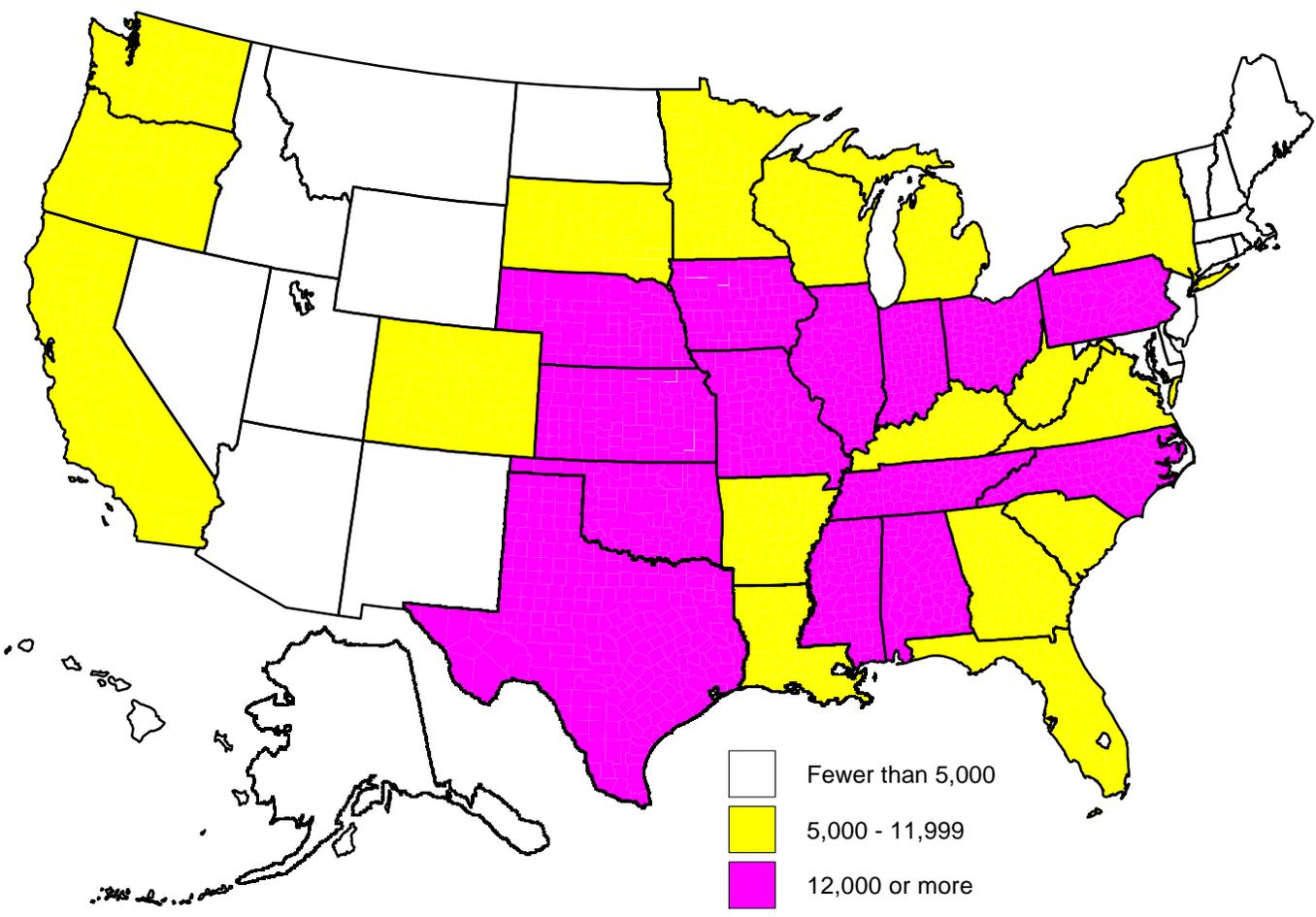
Out of a total U.S. public highway network of some 3.9 million miles, about 3.1 million miles (81 percent) run through rural areas (U.S. Department of Transportation, 1994). Interstates and other arterials comprise about 8 percent of the rural total, while collectors (roads used mostly for short distance, within county travel at moderate speeds) and local routes make up the remaining 92 percent. About 470,000 highway bridges of at least 20 feet in length, 80 percent of the U.S. total, are also located in nonmetro jurisdictions (U.S. Department of Transportation, 1993). The largest number of rural bridges service parts of the Eastern United States and localities in and around the Mississippi River and its tributaries (fig. 1).

Responsibility for the rural road network lies almost entirely with local and State governments. Local jurisdic-

tions (counties, towns and townships, and other local governments) control roughly 71 percent of the network, while States are responsible for another 22 percent. States generally administer rural roads through regional offices or share these responsibilities with local jurisdictions.

Local jurisdictions, therefore, have some difficult choices to make. In growing areas, increasing demands are being placed on the rural road and bridge network. Costs of maintaining and upgrading the system in these areas will be significant, and these costs might exceed the capacity of traditional funding sources (that is, local property taxes, State highway aid, or the Federal-Aid Highway Program). Local options include the tapping of nontraditional funding sources (such as local option gasoline taxes or public-private partnerships), using more cost-effective technologies and materials, and consolidating govern-

Figure 1  
**Nonmetro highway bridges by State, 1993**  
*Central and Eastern States have the most nonmetro bridges*



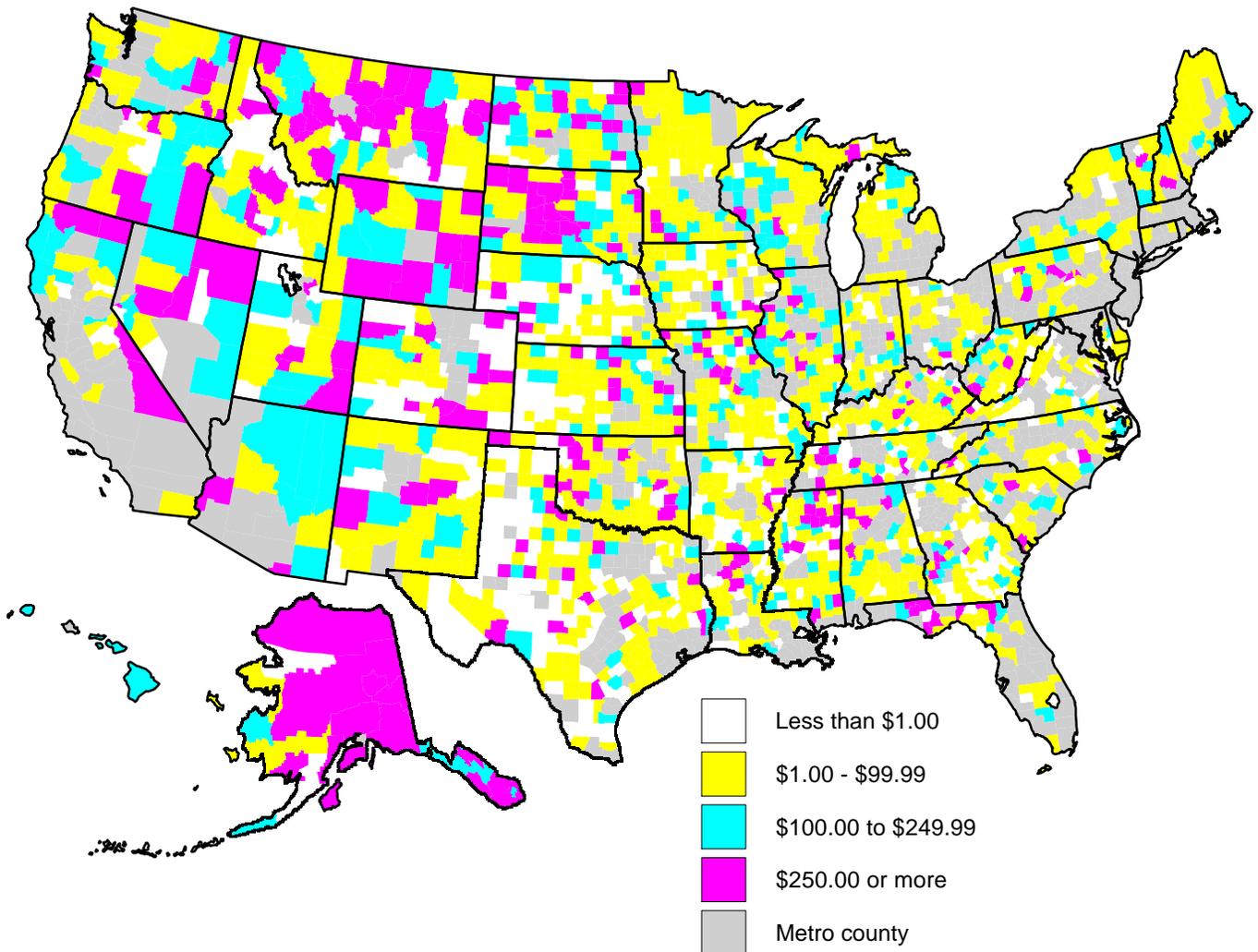
Note: Excludes bridges less than 20 feet in length.  
 Source: Mapped by ERS using data from the U.S. Department of Transportation, *Highway Statistics, 1993*.

ment services. In declining areas, where the local tax base is no longer sufficient to maintain the road and bridge network, other options could be pursued. One alternative is to reduce the mileage of public roads and bridges through either closure or privatization. Although this approach may inconvenience or increase travel costs for some users, it allows local jurisdictions to develop a more affordable rural road system by concentrating limited resources on the most heavily used roads. A short-term option is to cut costs by reducing maintenance, preserving only minimum standards on all roads. That option, however, could result in even more expensive repairs in the long run.

The largest source of Federal funding for roads is the Highway Planning and Construction Program. It provided about \$20.7 billion in 1994 for capital expenses on interstate highways, other arterials, and major collectors. Approximately 22 percent of program funds allocated directly to localities went to nonmetro jurisdictions in 1994 (fig. 2). The \$132 million cut by the 1995 Rescissions Act was a small reduction in funding. The program is funded by the Federal gasoline tax and its appropriations level for FY 1996 was virtually unchanged from the 2 earlier years' appropriations.

Establishing the 161,000-mile National Highway System (NHS), a network of the Nation's most important roads,

Figure 2  
**Per capita Federal highway funding, 1994**  
*Funding is highest in portions of the nonmetro West*



Source: Calculated by ERS using data from the U.S. Department of Commerce, Bureau of the Census, *Consolidated Federal Funds Report, 1994*.

will also affect nonmetro areas. While the law establishing the NHS contains a number of provisions designed to reduce the burden of Federal transportation regulations on the States, its most important component for rural areas is the abolition of the national speed limit. Under this legislation, States are free to set their own speed limits (fig. 3). Some expect the faster speeds to reduce travel time to many rural areas, possibly making them more economically competitive, especially in parts of the West, where significantly higher limits have already been adopted (Montana has no enforced daytime speed limit). Others expect higher rates of injury and fatality with the faster speeds, possibly increasing emergency medical response and road maintenance costs for State and local governments.

### Rural Access to Other Modes of Passenger Transport Varies Widely

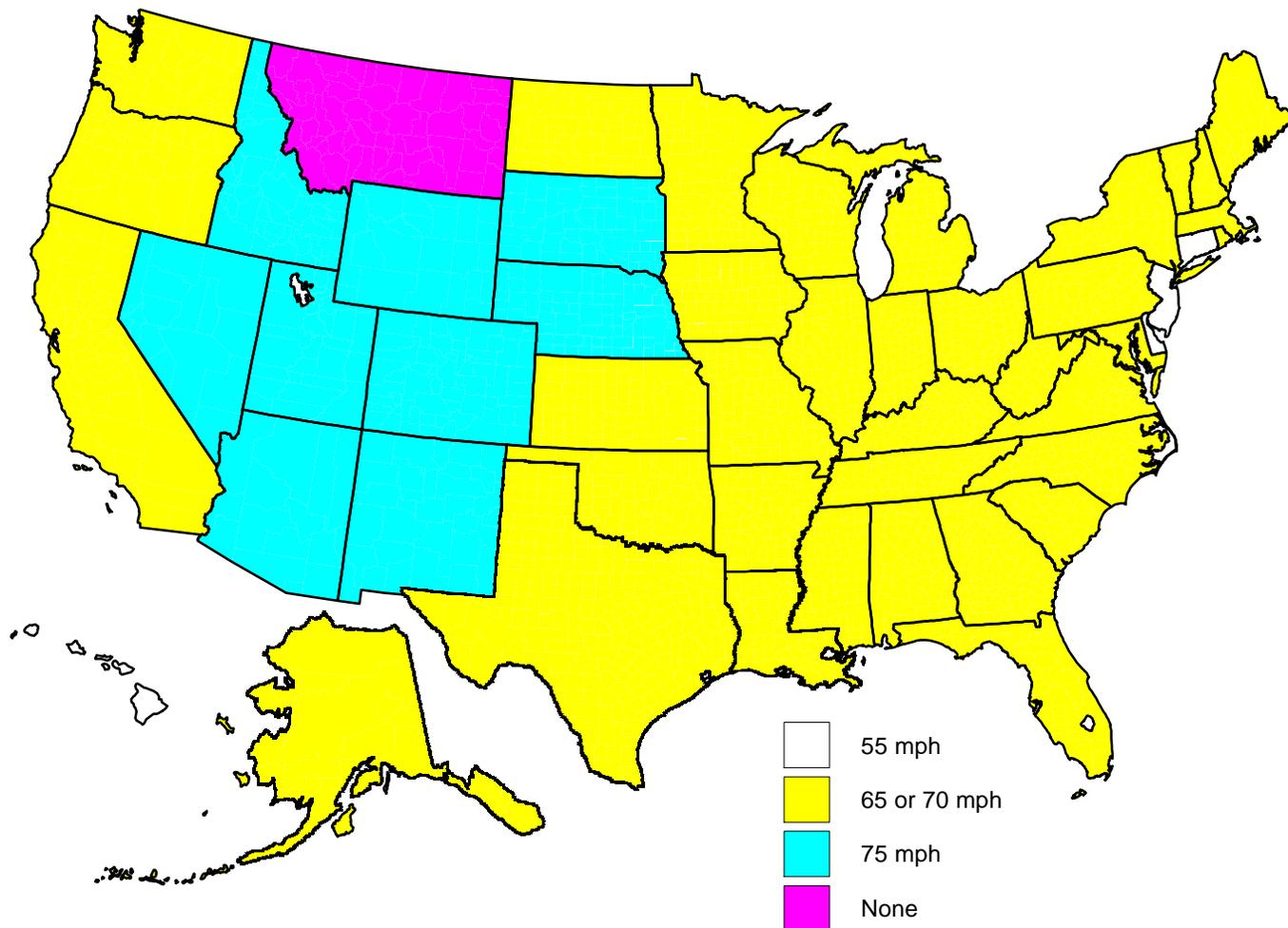
**Passenger Rail.** The Rail Passenger Services Act created the national passenger rail network in 1970 when it established Amtrak, a federally subsidized corporation. Amtrak operates an extensive passenger rail network, stretching some 24,000 miles and serving approximately 530 communities (U.S. General Accounting Office). Amtrak's service primarily emphasizes the high density, urban commuter corridors of the Northeast, parts of the upper Midwest, and the west coast, but many smaller communities also rely on the network.

The most pressing policy concern is Amtrak's deteriorating financial condition. Beginning in the early 1990's, due

Figure 3

#### Maximum daytime speed limits

*Limits are highest in the Mountain States, Nebraska, and South Dakota*



Source: Mapped by ERS using data provided by the American Automobile Association, May 7, 1996.

to a profound underinvestment in capital stock and overly optimistic revenue projections, Amtrak's operating deficit started to exceed its Federal subsidy (U.S. General Accounting Office). As a result, Amtrak was forced to assume additional debt, continue to delay maintenance and capital improvements, and sharply reduce staffing levels. This has led to a decrease in the quality of service on many routes, which has further hurt ridership levels and reduced revenues.

Reductions in Amtrak services may reduce or eliminate rail service to some rural communities. Strong opposition to proposed cutbacks has been voiced at State and local levels, bolstering the cause of passenger rail transportation in the short term. But declining ridership levels on many routes indicate that more difficult long-term choices lie ahead. In the near term, the nearly 25-percent reduction in Amtrak's Federal subsidy in the 1996 transportation appropriations legislation will continue to put pressure on the system to cut costs.

**Air Service.** The Airline Deregulation Act of 1978 eliminated the Civil Aeronautics Board and allowed air carriers to enter and exit markets and adopt rate structures of their own choosing. To ensure maintenance of service to smaller and more isolated communities, the legislation established the Essential Air Services program, which provides subsidies directly to airlines and to communities so that service is maintained in those markets.

The primary issue for rural air transportation during the 1980's was the effect of deregulation on smaller communities (Forkenbrock and others). Following deregulation, a sharp increase in overall domestic airline traffic resulted. As air carriers concentrated their operations around hub airports, air service to smaller communities generally improved, at least in terms of the quantity of flights available to rural residents. By substituting commuter equipment in smaller communities for jet service, departure frequencies increased and travel time decreased, however some feel that service only by propeller-driven equipment is lower quality than jet service. Airlines have also competed with lower fares in the larger markets, while airfares in the smaller and medium-sized communities have not fallen as rapidly. And the new safety standards for commuter airlines recently issued by the U.S. Department of Transportation may raise fares or reduce service to rural areas as air carriers respond to the higher costs associated with meeting the standards. Some have suggested that the declining quality and rising costs of rural air transportation may actually threaten the viability of some industries, such as tourism and high technology-dependent activities, located in smaller communities (Forkenbrock and others).

The Federal Essential Air Services Program provided about \$32 million in 1994 for maintaining air service to smaller communities affected by airline deregulation. Payments went directly to specific air carriers and communities, with about 40 percent of funding going to non-metro areas. Under the 1996 transportation appropriations legislation, the Essential Air Services program was cut about 30 percent. That cut may result in reduced services to some rural communities. The Federal Airport Improvement Program, funded by the airline ticket tax, is a much larger source of funding for airport planning, construction, and rehabilitation. It provided funding of about \$1.7 billion in 1994, approximately 12 percent of which was directly allocated to nonmetro jurisdictions (fig. 4). The program's appropriations were set at \$1.4 billion in FY 1996; however, \$664 million was cut from unused accounts from previous years.

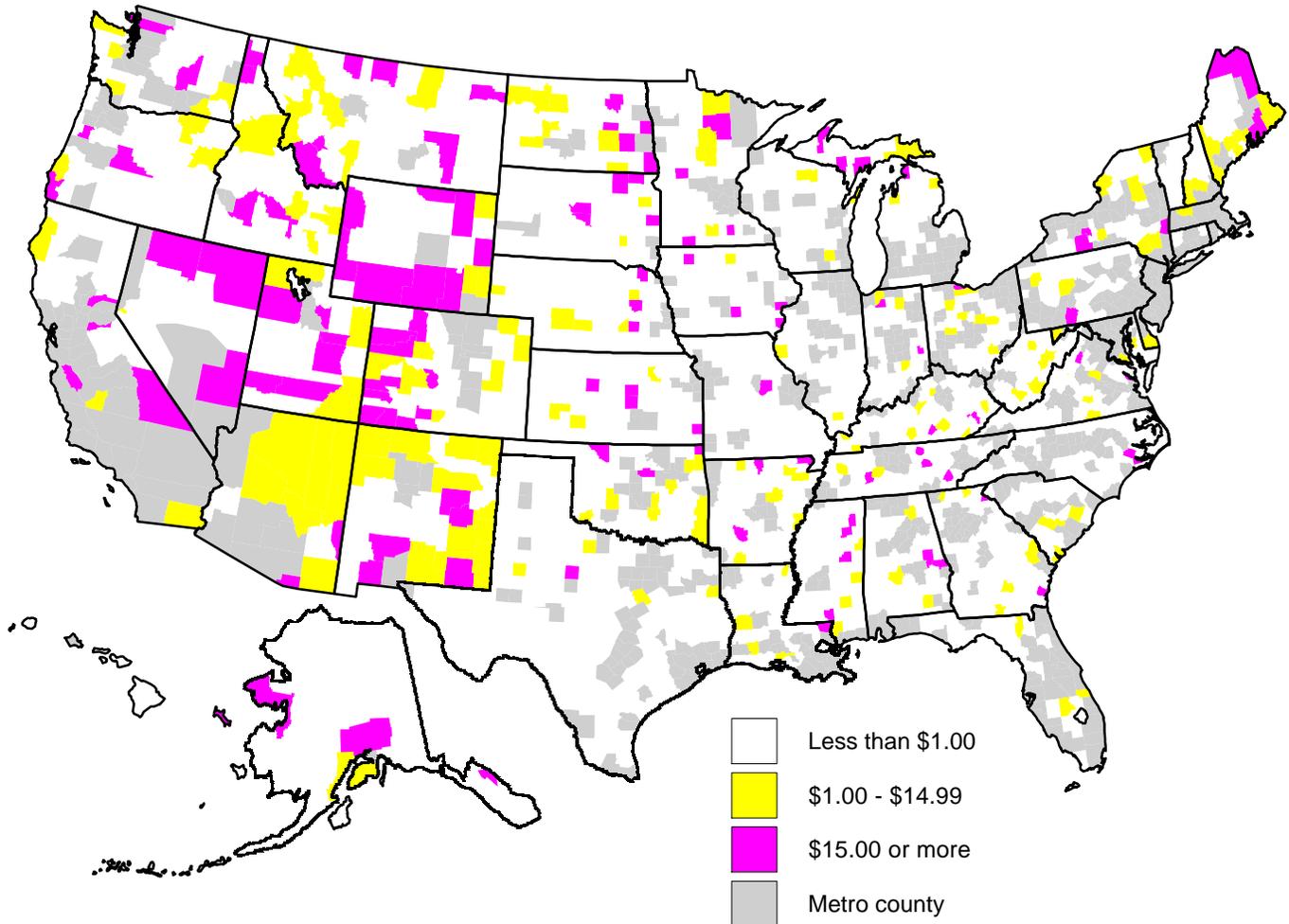
**Intercity Bus Service.** In 1982, the intercity bus industry was deregulated with the passage of the Bus Regulatory Reform Act, and carriers were free to abandon unprofitable or marginal routes. While air service and passenger rail service to some smaller communities continue to be subsidized through the Essential Air Services Program and Amtrak, deregulation of the bus industry contained no similar allowance. Even though the intercity bus network serves more traveler points than air and rail combined, accessibility is still the primary concern for rural areas. The trend since the early 1980's has been toward decreasing bus service to many smaller communities. For example, between September 1982 and January 1986, 4,514 communities lost some or all bus service, and 90 percent of them had fewer than 10,000 residents (U.S. Department of Agriculture).

According to ridership surveys, intercity bus patrons typically have lower incomes and are more likely to be minority, female, less-educated, and older than the average air or rail passenger (Forkenbrock and others). Since these passengers have few alternatives for intercity transportation, further reductions in bus service may sharply decrease their mobility.

**Local Public Transit.** Public transit is another component of the rural passenger transportation network. While this mode is usually associated with urban areas, such systems are also important in nonmetro areas, often providing rural residents with an essential link to jobs, health care, and other human service activities. In 1990, some 1,600 local agencies throughout the Nation provided rural public transportation services, primarily through bus or van service, with about 10,000 vehicles in use (U.S. Department of Transportation, 1994). Many local areas, however, still have little or no service.

Figure 4  
**Per capita airport capital funding, 1994**

*Most nonmetro counties receive little or no aid*



Source: Calculated by ERS using data from the U.S. Department of Commerce, Bureau of the Census, *Consolidated Federal Funds Report, 1994*.

Local transit often originates in small communities as a limited form of special-purpose transportation, sometimes expanding into a broader based mass transportation system if funding becomes available. Usually, such systems are nonprofit and initially operated as a social service to serve a specialized population, such as the elderly or the disabled. Many such systems lack coordination among local service providers, limiting their efficiency (U.S. Department of Agriculture). Introducing a greater degree of coordination would help reduce routing and scheduling overlap, administrative overhead, maintenance costs, and driver expenses.

Federal funding for rural public transit comes primarily from Nonurbanized Area Formula Apportionments (formerly the section 18 program). It allocated about \$140

million in 1994 directly to the States, which must distribute the funds for use in public transit systems in rural areas. The program's funding was cut 16 percent under the FY 1996 transportation appropriations legislation, putting pressure on local systems to come up with alternative funding or cut services. Federal human service programs are also an important source of funding for public transportation programs for low-income and elderly populations.

#### **Further Consolidations in the Freight Rail Industry Will Affect Rural Areas**

Faced with increased competition from the trucking industry, waterway transportation, and pipelines, the national rail network has been steadily decreasing in size from a peak of 254,000 miles in 1916 to only about 162,000

miles in 1990, a 36-percent reduction (Fruin and Baumel). This trend became more pronounced with passage of the Staggers Rail Act of 1980, which deregulated the freight rail industry. Deregulation has encouraged aggressive restructuring activity by carriers to improve profitability, but such activity has also raised antitrust concerns. The recent mergers of the Burlington Northern and Santa Fe lines and of the Union Pacific and Southern Pacific railroads are cases in point. At issue is whether power is becoming too concentrated in the industry. While merger proponents argue that consolidation will lead to improved efficiency, better service, and reduced costs, opponents question the benefits.

Consolidations in the freight rail industry will likely continue to have direct implications for many rural areas. While average costs for the industry have fallen, much of the merger activity has come at the expense of rural areas, as many of them have experienced service reductions on the underused branch lines that serve their communities. The Local Rail Freight Assistance program, however, has helped to offset negative effects in some rural areas by providing for the maintenance of rail lines affected by cut-backs. It provided about \$17 million in 1994 for the maintenance of rail lines as freight carriers abandoned or cut back service. This program primarily benefits rural areas, with most of the related projects located there. The Local Rail Freight Assistance Program received no Federal funding under FY 1996 transportation appropriations legislation. The program also received no funding under supplemental legislation, unlike it had in recent years.

Rural and agricultural shippers no longer served by freight rail have adopted other modes of transportation, primarily trucking. However, with large parts of the Nation's rural road and bridge network in need of major repairs, the increased traffic may create serious long-term problems for the nonmetro transportation network.

#### **Repairs to the Inland Waterway System Will Be Costly**

The inland waterway system, made up of the Great Lakes and St. Lawrence Seaway, inland rivers, and coastal waterways, is also an element of the rural transportation network. Water transportation was the first long-distance method of moving goods and people in America and still represents the cheapest alternative for moving heavy bulk commodities, such as grain and iron ore.

The disrepair of many of the Nation's approximately 245 locks and dams constitutes the primary waterway concern (Fruin and Baumel). On the Mississippi River, many of the locks and dams were constructed during the 1930's and most need repair or replacement. Upgrading the lock system, however, is a major investment, often costing as much as \$100 million per lock and sometimes considerably more. Typically, 50 percent of the funding for inland

waterway construction projects comes from waterway user charges collected by the Inland Waterway Trust Fund, with the remainder coming from the Federal Government. But given current receipts, it is unlikely the Trust Fund will be able to cover its share of the costs for needed improvements to the system. The situation is the same for the St. Lawrence Seaway system—collected tolls are insufficient to support both operating and maintenance costs.

An increase in Federal aid for the waterways seems unlikely under current fiscal constraints. While delayed maintenance work might represent a short-term solution to this problem, a long-term option would be increasing user fees. However, this would pressure smaller shippers and could result in reduced water traffic and increased usage of rural roads and bridges.

#### **Financing and Planning Are Common Transportation Issues**

Some policy issues relate to all modes of rural transportation. One of these is **financing**. Most transportation projects are funded through a combination of Federal, State, and local government expenditures and many rely on user charges, such as the gas tax. Federal aid is sometimes too restricted in its use to be the single source for financing rural transportation. For example, the U.S. Department of Transportation's Highway Planning and Construction program can be used only for capital expenditures, such as construction and reconstruction. Maintenance costs, such as pothole patching or snowplowing, must be funded through other sources. Although user charges provide more flexibility, their capacity to raise revenues is often limited. To augment public transportation investments, innovative financing mechanisms, such as public-private partnerships, are becoming more common, especially as governments at all levels attempt to deal with tighter budgetary constraints.

A second issue is **planning**. Frequently, a coordinated regional approach that stresses intermodal capabilities is prudent, given that most rural transportation projects serve scattered and isolated populations and have high per capita costs. The Federal Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) embodies such an emphasis. ISTEA seeks to address concerns about global competition, economic development, and air quality issues by providing State and local governments greater input in transportation planning and a reliance on "intermodalism" (which can be defined as "the development of a competitive network of air, port, truck, and rail services that facilitate the efficient distribution of goods and services in the global economy" (Hansen)). ISTEA is limited, however, by the lack of autonomy for rural areas in the planning process. Urban areas are allowed to determine local transportation needs in conjunction with

the State and affected transit operators. Rural jurisdictions are not afforded the same degree of autonomy, with their planning provisions subsumed within the overall State plan (although many rural areas provide input into the process). This issue will likely be a primary concern for rural areas as ISTEA is reauthorized (which must occur by September 30, 1997, for the surface transportation programs it covers to continue in FY 1998).

Finally, the role of **institutional** changes must be considered. Many of the current rural transportation institutions evolved from earlier decisionmaking processes that may not always make sense today, given changes in the social, economic, and political spheres. Rural transportation issues may require a new way of doing things, like consolidating governmental functions or units, adopting more common-sense regulations, creating joint planning entities, encouraging enhanced private roles, and fostering greater cooperation between local and State jurisdictions to develop stronger regional ties.

Federal and State governments could promote transportation planning efforts that foster local and regional economic development by encouraging regional planning for issues that cross local political boundaries. They could also introduce more flexible design and construction standards, and develop more creative funding mechanisms in conjunction with greater oversight of local government spending to reduce project costs. Finally, programs emphasizing technical assistance and training of local highway officials and encouragement of rural road and bridge design research might improve construction standards.

## For Further Reading

D. J. Forkenbrock, T. F. Pogue, D. J. Finnegan, and N. S. J. Foster, "Transportation Investment to Promote Economic Development," *Infrastructure Investment and Economic Development: Rural Strategies for the 1990's*, AGES-9069, USDA-ERS, Nov. 1990.

J. E. Fruin and C. P. Baumel, "How Much Transportation Infrastructure does Rural America Need?" paper presented to the Hubert H. Humphrey Institute of Public Affairs Transportation and Economic Development in the Upper Midwest Research Roundtable and North Central Regional Research Committee NC-137 on Agricultural and Rural Transportation, Washington, DC, Apr. 17, 1992.

P. Hansen, "ISTEA: an urban, rural tool for economic growth," *Regional Reporter*, May 1992.

U.S. Department of Agriculture, Agricultural Marketing Service, *Transportation in Rural America: A Policy Backgrounder*, Apr. 1991.

U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics*, 1993.

\_\_\_\_\_, Bureau of Transportation Statistics, *Transportation Statistics: Annual Report*, 1994.

U.S. General Accounting Office, *Intercity and Passenger Rail: Financial and Operating Conditions Threaten Amtrak's Long-Term Viability*, GAO/RCED-95-71, Feb. 1995.